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|  | **Unit 2: Cells & Cell Processes** | | | | | | | |
| Name: | | Start Date: | | | 10/31/16 |  |  |  |
|  | | Test 3 Date: | | | 11/21/16 |  |  |  |
| Period: | | Teacher: Ms. J | | | |  |  |  |
|  | |  |  |  |  |  |  |  |
| **Cells & Cell Processes** | | Submitted | Resubmit | Correct | Evidence of Learning | Page | Date | Sign-Off |
| **Objective 7:** Summarize the structure and function of organelles in eukaryotic cells (including the nucleus, plasma membrane, cell wall, mitochondria, vacuoles, chloroplasts, and ribosomes) and ways that these organelles interact with each other to perform the functions of the cell. | |  |  |  | Catalyst 1: Plant cell vs. Animal Cell |  |  |  |
|  |  |  | Homework: Venn Diagrams |  |  |  |
|  |  |  | Catalyst: TBD |  |  |
|  |  |  | Notes: Plant Cells vs. Animal Cells |  |  |
|  |  |  | Online Lab: Plant vs. Animal Cells |  |  |
|  |  |  | Homework: Organizing Organelles |  |  |
|  |  |  | **QUIZ: Objective 7** |  | **11/14** |

**Unit 2: Cells & Cell Processes**

Start Date: 10/31/16

EOTT Date: 11/21/16

**Objective 6:** Compare prokaryotic and eukaryotic cells in terms of their general structures (plasma membrane and genetic material) and degree of complexity.

*Essential Question:* How do prokaryotes and eukaryotes differ?

*“I Can” Statements:*

* Compare and contrast prokaryotes and eukaryotes

**Objective 7:** Summarize the structure and function of organelles in eukaryotic cells (including the nucleus, plasma membrane, cell wall, mitochondria, vacuoles, chloroplasts, and ribosomes) and ways that these organelles interact with each other to perform the function of the cell.

*Essential Question:* What are the main organelles (nucleus, plasma membrane, cell wall, mitochondria, vacuoles, chloroplasts, and ribosomes) and their functions?

*“I Can” Statements:*

* Identify the structure and function of organelles
* Explain the interactions of organelles (e.g. nucleolus 🡪 ribosome 🡪 ER 🡪 Golgi)
* Use a compound light microscope

**Objective 8 :**  Explain how homeostasis is maintained in a cell and within an organism in various environments (including temperature and pH).

*Essential Question:* How do cells maintain homeostasis?

*Essential Question:* How do organisms maintain homeostasis?

*“I Can” Statements:*

* Model the way a plasma membrane functions to control the way particles move in/out of a cell
* Predict the movement of water and/or solutes across the cell membrane, given a set of conditions
* Explain how energy is used to maintain homeostasis

**CATALYST 1: Refer back to your colorings in Packet 6. What are 3 differences between plant cells and animal cells?**

**CATALYST 2: TBD**

Biology (Honors) Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Notes: Comparing Plants and Animal Cells Period: \_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_

**Similarities**

* Both animal and plant cells have *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* that enclose the cell.
* Both are filled with *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,* a gel-like substance containing chemicals needed by the cell.
* Both have a *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* where *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* is stored.
* Both have *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*, protein builders of cells.
* Both plant and animal cells have *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* that use oxygen to break down food and release energy.
* Both kinds of cells have *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* that contain food, water, or waste products. (Animal cells usually have many more vacuoles than plant cells do.)
* Both have *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* where a system of tubes transports proteins.
* Both have *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* to distribute proteins outside of the cell.

**Plant Cells Only!**

* Plant cells have *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* that provide structure. Animal cells do not have cell walls.
* Plant cells have *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*for photosynthesis, which is how they make their food/energy. Animal eat to get their energy, thus animal cells do not have chloroplasts.
* Plant cells have much larger *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*, typically they have one large, central vacuole
* One of the reasons plant cells have larger vacuoles is for\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* As a vacuole is filled with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the pressure inside pushes against the cell wall, help the plant to support it’s rigid structure
* This is called *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.*

**Animal Cells Only!**

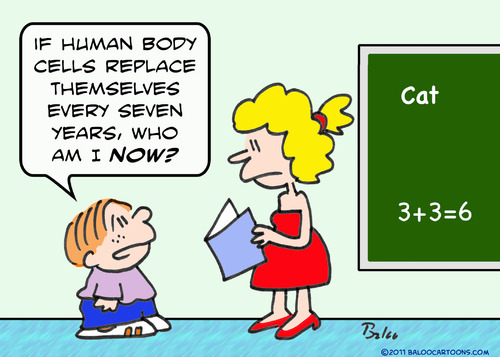
* Animal cells use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for energy production. Plants primarily use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_to produce energy.
* Animals cells have *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,* but plant cells do not.

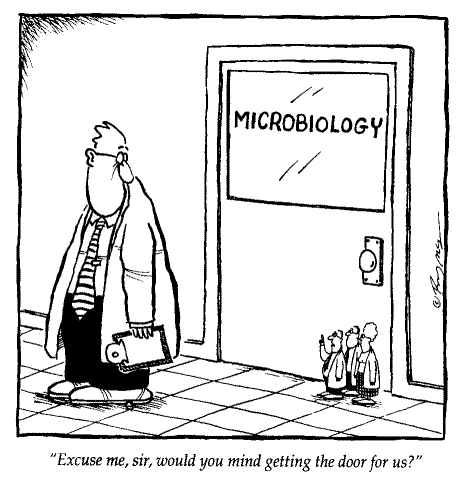
**Don’t forget the Central Dogma…**

* The nucleus is the control center of plant and animal cells.
* The nucleus contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

DNA and RNA molecules work together to make proteins. Cells require thousands of protein molecules in order to work well. (Central Dogma!)

* DNA in a cell’s nucleus determines what kind of cell it is.
* DNA has instructions for all of the cell’s activities.
* DNA doubles when a cell divides.



Biology I \_\_\_\_\_ Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Venn Diagram: Cell Structure **55 pts** Period: \_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_

1. Use the Venn diagram below to compare prokaryotic and eukaryotic cells. Place the following structures in the appropriate places:

* Cilia
* Cytoplasm
* Cytoskeleton
* DNA

**Prokaryotic Eukaryotic**

* Endoplasmic reticulum
* Flagella
* Golgi apparatus
* Lysosomes
* Mitochondria
* Nuclear envelope
* Nucleoid
* Nucleolus
* Nucleus
* Plasma membrane
* Ribosomes
* Vacuoles

1. Use the Venn diagram below to compare plant and animal cells. Place the following structures in the appropriate places:

* Cell wall
* Centrioles
* Chloroplasts
* Cytoplasm
* Cytoskeleton
* DNA
* Endoplasmic reticulum
* Golgi apparatus
* Leucoplasts
* Lysosomes
* Mitochondria
* Nuclear envelope
* Nucleolus
* Nucleus
* Plasma membrane
* Ribosomes
* Vacuoles

**Plant Animal**

*\_\_\_\_\_*

1. Imagine that the school building represents a cell. The various parts of the school building would then represent cellular organelles. For each organelle listed below, list the part of the school that would represent that cell part and give an explanation for your answer.

|  |  |  |
| --- | --- | --- |
| **Cell structure** | **Part of the School** | **Explanation** |
| Cell wall |  |  |
| Cell membrane |  |  |
| Cytoplasm |  |  |
| Cytoskeleton |  |  |
| Nucleus |  |  |
| Mitochondria |  |  |
| Chloroplasts |  |  |
| Ribosomes |  |  |
| ER |  |  |
| Golgi apparatus |  |  |
| Vacuoles |  |  |
| Lysosomes |  |  |

**2 pts**

1. Match the cell parts at the right with their functions at the left.
2. Cell membrane
3. Cell wall
4. Centrioles
5. Chloroplasts
6. Cilia
7. Cytoplasm
8. Cystoskeleton
9. Endoplasmic reticulum
10. Flagella
11. Golgi apparatus
12. Lysosomes
13. Mitochondria
14. Nucleolus
15. Nucleus
16. Ribosomes
17. Vacuole
18. Gel-like substance surrounding the organelles
19. Stores genetic information (DNA); directs cellular activity by producing RNA
20. Produces ribosomes
21. Active in protein synthesis
22. Network of proteins that support the cell and help keep its shape
23. Transport system within the cell; produces lipids
24. processes and packages proteins and other macromolecules
25. Major storage site, primarily for water in plants
26. Contains powerful enzymes for digestion of materials
27. Powerhouse of the cell; site of cellular respiration for ATP production
28. Site of photosynthesis – conversion of sun’s energy into glucose
29. Used in cell division to help move chromosomes
30. Found outside of the cell membrane in plants; gives support to cells
31. Regulates what enters and exits the cell
32. Long and whip-like; helps provide motility for the cell
33. Short, numerous hairs projecting from the membrane; helps provide motility for the cell